

REMARKS

Pending claims

Claims 1-20 are pending in the instant Application. By this amendment, claims 1-20 have been cancelled, and claims 21-40 are newly added. Addition of the new claims serves to further clarify the subject matter which Applicants consider to be the invention. New claims 23-29, and 31 are drawn to polynucleotides, expression vectors, host cells, and methods of producing a polypeptide and replace original claims 3-4, and 9-14. New claims 21-22, 30, and 35-36 are drawn to polypeptides, antibodies, and compositions comprising the polypeptide and replace original claims 1-2, 10, and 16. New claims 32-34 are drawn to methods of detection of polynucleotides and replace claims 7-8. New claims 37 and 38, which are drawn to methods of identifying compounds that bind to and modulate the activity of the polypeptide, are supported in the Specification at, e.g., page 13, lines 15-17, page 18, lines 5-7, page 36, lines 18-20, and Example XIV at page 62. New claims 39 and 40, drawn to methods of testing compounds for effectiveness in altering polynucleotide expression and for toxicity, are supported in the Specification at, e.g., page 39, lines 13-21; page 39, line 34 through page 40, line 10; and page 43, lines 25-33. No new matter is added by any of these amendments.

Restriction Requirement

In the Restriction Requirement, the Examiner requested Applicants to elect one of the following inventions:

Groups 1-16 (claims 1, 2, and 15) drawn to a polypeptide and a pharmaceutical composition comprising thereof.

Groups 17-32 (claims 3-4, and 9-14) drawn to a polynucleotide encoding a polypeptide comprising the amino acid sequence set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18, vector, host cell, and method of producing a polypeptide of SEQ ID NO:1-13, and SEQ ID NO:16-18.

Groups 33-48 (claims 7-8) drawn to a method for detecting a polynucleotide encoding a polypeptide comprising an amino acid sequence set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.

Groups 49-64 (claim 16) drawn to an antibody to a polypeptide comprising an amino acid set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.

Groups 65-80 (claim 17) drawn to an agonist to a polypeptide comprising an amino acid sequence set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.

Groups 81-96 (claim 18) drawn to an antagonist to a polypeptide comprising an amino acid set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.

Groups 97-112 (claim 19) drawn to a method of treating or preventing a disorder by administering a polypeptide comprising an amino acid set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.

Groups 113-128 (claim 20) drawn to a method of treating or preventing a disorder by administering an antagonist to a polypeptide comprising an amino acid set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.

Group Number	Original Claims	New Claims
Groups 1-16 (claims 1, 2, and 15) drawn to a polypeptide and a pharmaceutical composition comprising thereof.	1	21
	2	22
	15	35-36
Groups 17-32 (claims 3-4, and 9-14) drawn to a polynucleotide encoding a polypeptide comprising the amino acid sequence set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18, vector, host cell, and method of producing a polypeptide of SEQ ID NO:1-13, and SEQ ID NO:16-18.	3	23
	4	24
	9	25
	10	31
	11	31
	12	26
	13	27
	14	28-29
Groups 33-48 (claims 7-8) drawn to a method for detecting a polynucleotide encoding a polypeptide comprising an amino acid sequence set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.	7	32-33
	8	34
Groups 49-64 (claim 16) drawn to an antibody to a polypeptide comprising an amino acid sequence set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.	16	30

Groups 65-80 (claim 17) drawn to an agonist to a polypeptide comprising an amino acid sequence set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.	17	-
Groups 81-96 (claim 18) drawn to an antagonist to a polypeptide comprising an amino acid set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.	18	-
Groups 97-112 (claim 19) drawn to a method of treating or preventing a disorder by administering a polypeptide comprising an amino acid set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.	19	-
Groups 113-128 (claim 20) drawn to a method of treating or preventing a disorder by administering an antagonist to a polypeptide comprising an amino acid set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18.	20	-

Applicants hereby elect, with traverse, to prosecute Group 23 (of Groups 17-32), which includes new claims 23-29, and 31 (replacing original claims 3-4, and 9-14), and is drawn to polynucleotides encoding a polypeptide comprising an amino acid sequence set forth in SEQ ID NO:1-13, and SEQ ID NO:16-18, vector, host cell, and method of producing a polypeptide of SEQ ID NO:1-13, and SEQ ID NO:16-18.

Further, Applicants elect, with traverse, to prosecute claims related to the polynucleotide sequences encoding the polypeptide sequence of SEQ ID NO:7, which sequences include SEQ ID NO:25, and which sequences read on new claims 21-22, and 35-36 (replacing original claims 1, 2, and 15). Applicants reserve the right to prosecute the subject matter of non-elected claims in subsequent divisional applications. Applicants traverse both the restriction requirement and the obligation to elect a single sequence for prosecution which were imposed in the Restriction Requirement mailed October 2, 2003 for at least the following reasons.

The unity of invention standard **must** be applied in national stage applications

Section 1850 of the Manual of Patent Examining Procedure (original 8th edition, published August, 2001) (hereinafter "MPEP") provides:

... [W]hen the Office considers international applications ... during the national stage as a Designated or Elected Office under 35 U.S.C. 371, PCT Rule 13.1 and 13.2 will be followed when considering unity of invention of claims of different categories without regard to the practice in national applications filed under 35 U.S.C. 111....

In applying PCT Rule 13.2 to ... national stage applications under 35 U.S.C. 371, examiners should consider for unity of invention all the claims to different categories of invention in the application and permit retention in the same application for searching and/or preliminary examination, claims to the categories which meet the requirements of PCT Rule 13.2....

Id at page 1800-60 to -61.

MPEP section 1893.03(d) reiterates the Examiner's obligation to apply the Unity of Invention standard PCT Rule 13.2 instead of U.S. restriction/election of species practice:

Examiners are reminded that unity of invention (not restriction) practice is applicable ... in national stage (filed under 35 U.S.C. 371) applications.

Id at page 1800-149, column 1.

Specific provisions of the Administrative Regulations Under the PCT and the corresponding provisions of the MPEP strongly support a finding of unity of invention among all of the claims in the present case

Unity of Invention is accepted as between claims to polypeptide sequences and claims to the polynucleotide sequences which encode them

Example 17, Part 2 of Annex B to the Administrative Instructions Under the PCT provides that unity of invention is accepted between a protein and the polynucleotide that encodes it:

Example 17

Claim 1: Protein X.

Claim 2: DNA sequence encoding protein X.

Expression of the DNA sequence in a host results in the production of a protein which is determined by the DNA sequence. The protein and the DNA sequence exhibit corresponding special technical features. Unity between claims 1 and 2 is accepted.

Thus, in the present case, unity of invention exists at least as between claims drawn to polypeptide sequences of SEQ ID NO:7 (*i.e.*, claims 21-22, and 35-36) and as to claims drawn to polynucleotide sequences which encode these polypeptides (*i.e.*, claims 23-26, and 31).

Therefore, Applicants respectfully request that the Examiner withdraw the Restriction Requirement at least as to claims 21-29, 31, and 35-36, and examine those claims in a single application.

Unity of invention exists with respect to dependent claims in the same claim category as the independent claim from which they depend

MPEP section 1850(A) and 1893.03(d), which recite the provisions of paragraph (c) of Part 1 (entitled "Instructions Concerning Unity of Invention") of Annex B (entitled "Unity of Invention") to the Administrative Instructions Under the PCT, provides:

(A) Independent and Dependent Claims.

Unity of invention has to be considered in the first place only in relation to the independent claims in an international application and not the dependent claims. By "dependent" claim is meant a claim which contains all the features of another claim and is in the same category of claim as that other claim (the expression "category of claim" referring to the classification of claims according to the subject matter of the invention claimed for example, product, process, use or apparatus or means, etc.).

(i) If the independent claims avoid the prior art and satisfy the requirement of unity of invention, no problem of lack of unity arises in respect of any claims that depend on the independent claims. In particular, it does not matter if a dependent claim itself contains a further invention....

See MPEP section 1850(A) at page 1800-61. See also MPEP Appendix AI at page 53.

In the present case, claims 22-27, and 35-36, all of which depend from claim 21, are directed to compositions of matter, *i.e.*, to products. All of these claims contain all of the features of the independent claim. Further, as discussed above, there is unity of invention as between claim 21 and claim 31.

Thus, it is improper to restrict claims 21-22, and 35-36 (replacing original claims 1-2, and 15) from claims 23-27, and 31 (replacing original claims 3-4, and 9-13), as the Examiner has done. Therefore, Applicants respectfully request that the Examiner withdraw the Restriction Requirement at least as to the composition of matter claims, and that at least those claims be considered together in a single application.

Unity of invention exists as between all of Applicants' claims

MPEP 1850 provides:

Unity of invention exists only when there is a technical relationship among the claimed inventions involving one or more special technical features. The term "special technical features" is defined as meaning those technical features that define a contribution which each of the inventions considered as a whole, makes over the prior art. The determination is made based on the contents of the claims as interpreted in light of the description and drawings. Annex B also contains examples concerning unity of invention.

Id at page 800-61.

MPEP 1893.03(d) similarly provides:

A group of inventions is considered linked to form a single general inventive concept where there is a technical relationship among the inventions that involves at least one common or corresponding special technical feature. The expression special technical features is defined as meaning those technical features that define the contribution which each claimed invention, considered as a whole, makes over the prior art. For example, a corresponding technical feature is exemplified by a key defined by certain claimed structural characteristics which correspond to the claimed features of a lock to be used with the claimed key. Note also examples 1-17 of Annex B Part 2 of the PCT Administrative Instructions as amended July 1, 1992 contained in Appendix AI of the MPEP.

Id at page 1800-149.

In the present case, unity of invention exists among all of Applicants' claims. The claimed polypeptide sequences and the claimed polynucleotide sequences encoding them are corresponding technical features which are common to all of Applicants' claims, which serve to technically interrelate all of Applicants' claims, and which define the contribution over the prior art made by each of them. Thus, Applicants' claims are linked to form a single general inventive concept, and Applicants are therefore entitled to prosecute all of their pending claims in a single national stage application.

The claimed polypeptide sequences, and the claimed polynucleotide sequences encoding those polypeptide sequences, are corresponding technical features that are common to all of Applicants' claims and that serve to technically interrelate them

Applicants' claims recite *inter alia* the polypeptides of SEQ ID NO:7, and polynucleotides encoding those polypeptides, which sequences include the polynucleotide sequences of SEQ ID NO:25. Applicants respectfully submit that the claimed polypeptide sequences of SEQ ID NO:7, and

the claimed polynucleotide sequences encoding them, are corresponding technical features, given that the former are encoded by the latter, and conversely, the latter encode the former.

Further, the claimed polypeptide and corresponding polynucleotide sequences are common to all of Applicants' claims, given that each claim refers to one or both either explicitly or implicitly, by virtue of depending from a claim which makes an explicit reference to the claimed sequences.

Moreover, the claimed polypeptide and corresponding polynucleotide sequences serve to technically interrelate all of Applicants' claims. Applicants' composition of matter claims (21-27, 30, 31-32, and 35-36) are drawn to either the sequences themselves (21 and 22, drawn to polypeptide sequences, and 23-27, and 31 drawn to polynucleotide sequences), to compositions of matter which comprise the sequences as one element (26-27, drawn to recombinant polynucleotide sequences, and transformed cells, respectively, and 35-36, drawn to a pharmaceutical composition), or to compositions of matter wherein the claimed sequences functionally limit the claimed subject matter (claim 30, drawn to antibodies which specifically bind a polypeptide of claim 21).

In Applicants' method claims (28-29, 32-34, and 37-40), the claimed sequences serve as either the product of the claimed method (claims 28 and 29, drawn to a method of polypeptide production) and/or as a reagent for performing the method (claims 37 and 38, drawn, respectively, to methods of screening for compounds which specifically bind, or compounds which modulate the activity of, a polypeptide of claim 21; and claims 32-34, 39, and 40, drawn, respectively, to methods of detecting a target polynucleotide in a sample, a method of screening for compounds which alter the expression of a target polynucleotide, and a method for assessing toxicity of a test compound).

Therefore, the claimed polypeptide and polynucleotide sequences are corresponding technical features which are common to all of Applicants' claims, and which serve to technically interrelate them.

In sum, the claimed polypeptide sequences and the claimed polynucleotide sequences which encode them are corresponding technical features which are common to all of Applicants' claims, which serve to technically interrelate all of Applicants' claims, and which define the contribution over the prior art made by each of them. Thus, Applicants' claims are linked to form a single general inventive concept, and Applicants are therefore entitled to prosecute all of their pending claims in a single national

stage application. Withdrawal of the restriction requirement in the present case is therefore respectfully requested.

In the event that the Examiner does not apply the unity of invention standard to this national phase application, Applicants note that the invention encompassed by claims 32-34 (replacing original claims 7-8) and claims 39-40 are drawn to methods of use of the polynucleotides of Group 23, and should be examined together. These method claims recite a product (i.e., a polynucleotide), which is of the same scope as the claimed polynucleotides being searched by the Examiner. Therefore, it would not be an undue burden on the Examiner to examine these method claims since the searches for the claimed polynucleotides and these method claims would substantially overlap.

Rejoinder

In addition, the method claims 32-34 and 39-40 are entitled to rejoinder upon allowance of a product claim per the Commissioner's Notice in the Official Gazette of March 26, 1996, entitled "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai*, *In re Brouwer* and 35 U.S.C. § 103(b)" which sets forth the rules, upon allowance of a product claim, for rejoinder of process claims covering the same scope of products. See also M.P.E.P. 821.04 as follows.

Where product and process claims drawn to independent and distinct inventions are presented in the same application, applicant may be called upon under 35 U.S.C. 121 to elect claims to either the product or process. . . The claims to the nonelected invention will be withdrawn from further consideration under 37 C.F.R. 1.142. . . However, if applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product claim will be rejoined.

The Election of Species Requirement

Applicants elect, with traverse, to prosecute claims related to the polynucleotide sequences encoding the polypeptide sequence of SEQ ID NO:7, which sequences include SEQ ID NO:25. Those polynucleotide sequences read on new claims 23-29, and 31 (replacing

original claims 3-4, and 9-14). Applicants traverse the Election of Species Requirement for at least the following reasons.

The Examiner's attention is directed to the Patent Office's own requirements for Markush practice, set forth in the 8th edition of the M.P.E.P. (February 2003) at § 803.02 regarding restriction requirements in Markush-type claims:

PRACTICE RE MARKUSH-TYPE CLAIMS

If the members of the Markush group are **sufficiently few in number or so closely related** that a search and examination of the entire claim can be made without serious burden, the examiner must examine all the members of the Markush group in the claim on the merits, even though they are directed to independent and distinct inventions. In such a case, the examiner will not follow the procedure described below and will not require restriction.

Since the decisions in *In re Weber*, 580 F.2d 455, 198 USPQ 328 (CCPA 1978) and *In re Haas*, 580 F.2d 461, 198 USPQ 334 (CCPA 1978), **it is improper for the Office to refuse to examine that which applicants regard as their invention**, unless the subject matter in a claim lacks unity of invention. *In re Harnish*, 631 F.2d 716, 206 USPQ 300 (CCPA 1980); and *Ex parte Hozumi*, 3 USPQ2d 1059 (Bd. Pat. App. & Int. 1984). Broadly, **unity of invention exists where compounds included within a Markush group (1) share a common utility and (2) share a substantial structural feature disclosed as being essential to that utility.**

This subsection deals with Markush-type generic claims which include a plurality of alternatively usable substances or members. In most cases, a recitation by enumeration is used because there is no appropriate or true generic language. A Markush-type claim can include independent and distinct inventions. This is true where two or more of the members are so unrelated and diverse that a prior art reference anticipating the claim with respect to one of the members would not render the claim obvious under 35 U.S.C. 103 with respect to the other member(s). In applications containing claims of that nature, **the examiner may require a provisional election of a single species** prior to examination on the merits. The provisional election will be given effect in the event that the Markush-type claim should be found not allowable. Following election, the Markush-type claim will be examined fully with respect to the elected species and further to the extent necessary to determine patentability. If the Markush-type claim is not allowable over the prior art, examination will be limited to the Markush-type claim and claims to the elected species, with claims drawn to species patentably distinct from the elected species held withdrawn from further consideration.

As an example, in the case of an application with a Markush-type claim drawn to the compound C-R, wherein R is a radical selected from the group consisting of A, B, C, D, and E, the examiner may require a provisional election of a single species, CA, CB, CC, CD, or CE. The Markush-type claim would then be examined fully with respect to the elected species and any species considered to be clearly unpatentable over the elected species. If on examination the elected species is found to be anticipated or rendered obvious by prior art, the Markush-type claim and claims to the elected species shall be rejected, and claims to the nonelected species would be held withdrawn from further consideration. As in the prevailing practice, a second action on the rejected claims would be made final.

On the other hand, should no prior art be found that anticipates or renders obvious the elected species, the search of the Markush-type claim will be extended. If prior art is then found that anticipates or renders obvious the Markush-type claim with respect to a nonelected species, the Markush-type claim shall be rejected and claims to the nonelected species held withdrawn from further consideration. The prior art search, however, will not be extended unnecessarily to cover all nonelected species. Should applicant, in response to this rejection of the Markush-type claim, overcome the rejection, as by amending the Markush-type claim to exclude the species anticipated or rendered obvious by the prior art, the amended Markush-type claim will be reexamined. The prior art search will be extended to the extent necessary to determine patentability of the Markush-type claim. In the event prior art is found during the reexamination that anticipates or renders obvious the amended Markush-type claim, the claim will be rejected and the action made final. Amendments submitted after the final rejection further restricting the scope of the claim may be denied entry (emphasis added).

As can be seen from the above, it is clear that the present Restriction Requirement does not meet the Patent Office's own requirements.

First, if the number of "members of the Markush group are **sufficiently few in number or so closely related** that a search and examination of the entire claim can be made without serious burden, the examiner must examine all claims on the merits, even though they are directed to independent and distinct inventions. **In such a case, the examiner will not follow the procedure described below and will not require restriction.**" Withdrawal of the restriction requirement as between the specific sequences each in the claims is required on that basis alone.

Second, **"it is improper for the Office to refuse to examine that which applicants regard as their invention**, unless the subject matter in a claim lacks unity of invention. ... Broadly, **unity of invention exists where compounds included within a Markush group (1) share a common utility and (2) share a substantial structural feature disclosed as being essential to that**

utility.” Clearly, the sequences of the instant invention share both a common utility and structural homology, based on their classification as human membrane channel proteins.

Third, even if the claims could be considered to be “Markush-type generic claims which include a plurality of alternatively usable substances or members,” it is further noted that the M.P.E.P states that “A Markush-type claim can include independent and distinct inventions. This is true where two or more of the members are so unrelated and diverse that a prior art reference anticipating the claim with respect to one of the members would not render the claim obvious under 35 U.S.C. 103 with respect to the other member(s). In applications containing claims of that nature, **the examiner may require a provisional election of a single species** prior to examination on the merits.” This clearly applies in the present case.

Finally, the Examiner’s attention is directed to the M.P.E.P. at § 803.04 (Restriction - Nucleotide Sequences, EXAMPLES OF NUCLEOTIDE SEQUENCE CLAIMS) which states:

Applications claiming more than ten individual independent and distinct nucleotide sequences in alternative form, such as set forth in example (A), will be subject to a restriction requirement. Only the ten nucleotide sequences selected in response to the restriction requirement and any other claimed sequences which are patentably indistinct therefrom will be examined.

Applications claiming only a combination of nucleotide sequences, such as set forth in example (B), will generally not be subject to a restriction requirement. The presence of one novel and nonobvious sequence within the combination will render the entire combination allowable. The combination will be searched until one nucleotide sequence is found to be allowable. The order of searching will be chosen by the examiner to maximize the identification of an allowable sequence. If no individual nucleotide sequence is found to be allowable, the examiner will consider whether the combination of sequences taken as a whole renders the claim allowable.

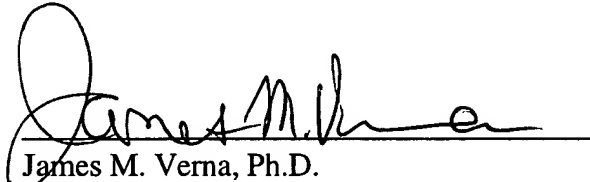
Therefore, it is respectfully submitted that, upon searching and examining SEQ ID NO:25 and finding no prior art over which SEQ ID NO:25 can be rejected, the Examiner must extend the search of the Markush-type claim to include the seventeen additional non-elected species (SEQ ID NO:19-24, and SEQ ID NO:26-36).

Applicants believe that no fee is due with this communication. However, if the USPTO determines that a fee is due, the Commissioner is hereby authorized to charge Deposit Account No. 09-0108.

Respectfully submitted,
INCYTE CORPORATION

Date: October 30, 2003

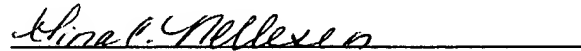
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